

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 36516

UT NO. 79

OVER

BEAVER BROOK

DISTRICT 1 - KOOCHICHING COUNTY



PREPARED FOR THE
MINNESOTA DEPARTMENT OF TRANSPORTATION
BY
COLLINS ENGINEERS, INC.
JOB NO.5221 (CEI 5A)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure unit inspected below water at Bridge No. 36516, Pier 1, was found to be in good condition with no defects of structural significance observed. The channel bottom appeared stable with no significant scour and no significant changes since the last inspection.

INSPECTION FINDINGS:

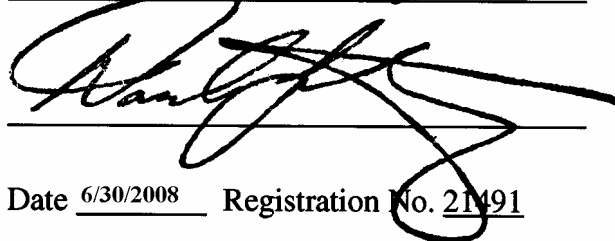
- (A) Random areas of coating failure and light surface corrosion were observed on all piles with some minor pitting, but with no significant section loss or other defects observed.
- (B) There was some light timber drift on the channel bottom scattered amongst the pier piles.

RECOMMENDATIONS:

- (A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

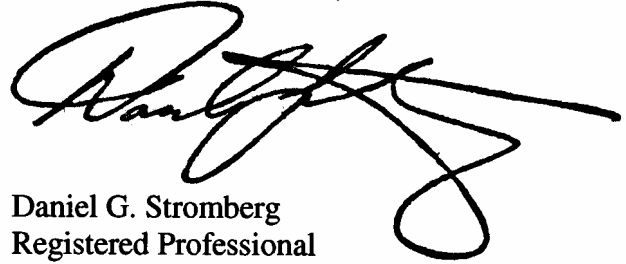
Daniel G. Stromberg



Date 6/30/2008 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 36516

Feature Crossed: Beaver Brook

Feature Carried: UT No. 79

Location: District 1 - Koochiching County

Bridge Description: The superstructure consists of two spans of reinforced concrete beams and deck, which is supported by two reinforced concrete abutments and one steel shell pile bent pier.

2. INSPECTION DATA

Professional Engineer Diver: Daniel G. Stromberg, P.E., S.E.

Dive Team: John J. Loftus, Valerie Roustan

Date: August 26, 2007

Weather Conditions: Sunny, 50° F

Underwater Visibility: 1.0 foot

Waterway Velocity: ± 0.5 fps

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Pier 1.

General Shape: Pier 1 consists of six concrete filled steel shell piles supporting a reinforced concrete cap.

Maximum Water Depth at Substructure Inspected: Approximately 1.3 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the east end of Pier 1.

Water Surface: The waterline was approximately 13.7 feet below reference.
Waterline Elevation = 1113.8.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

Item 61: Channel and Channel Protection: Code 7

Item 92B: Underwater Inspection: Code B/08/07

Item 113: Scour Critical Bridges: Code I/92

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

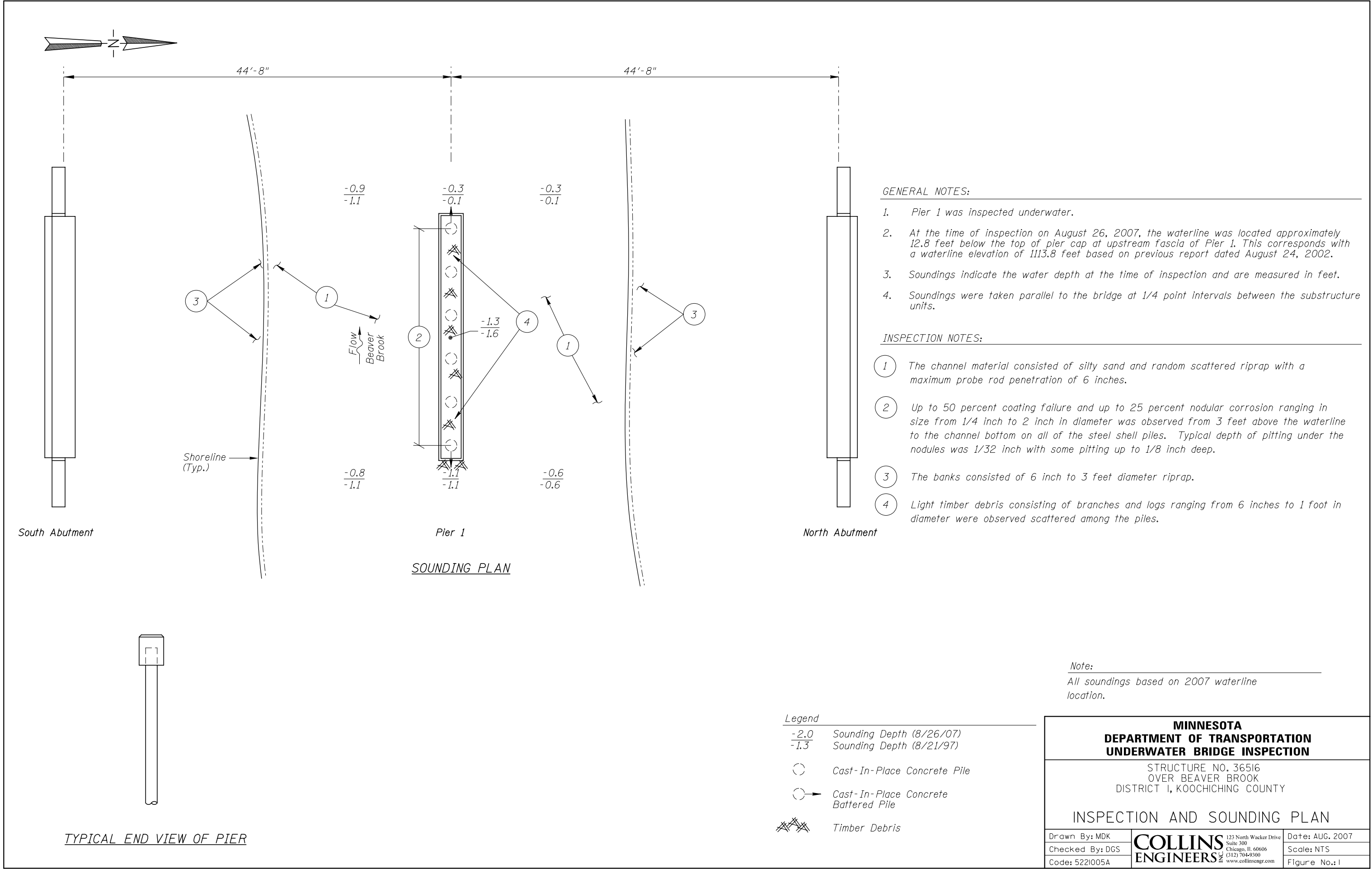
 Yes X No

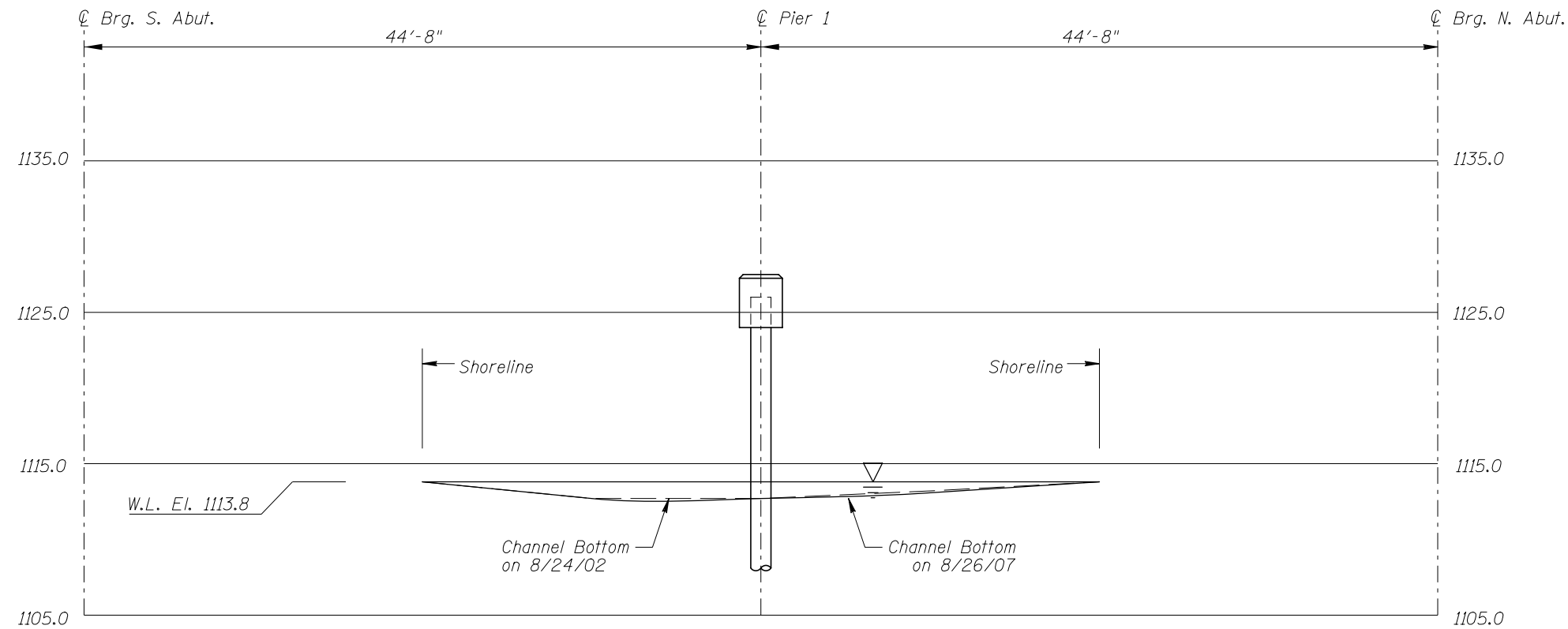


Photograph 1. Overall View of Bridge, Looking East.

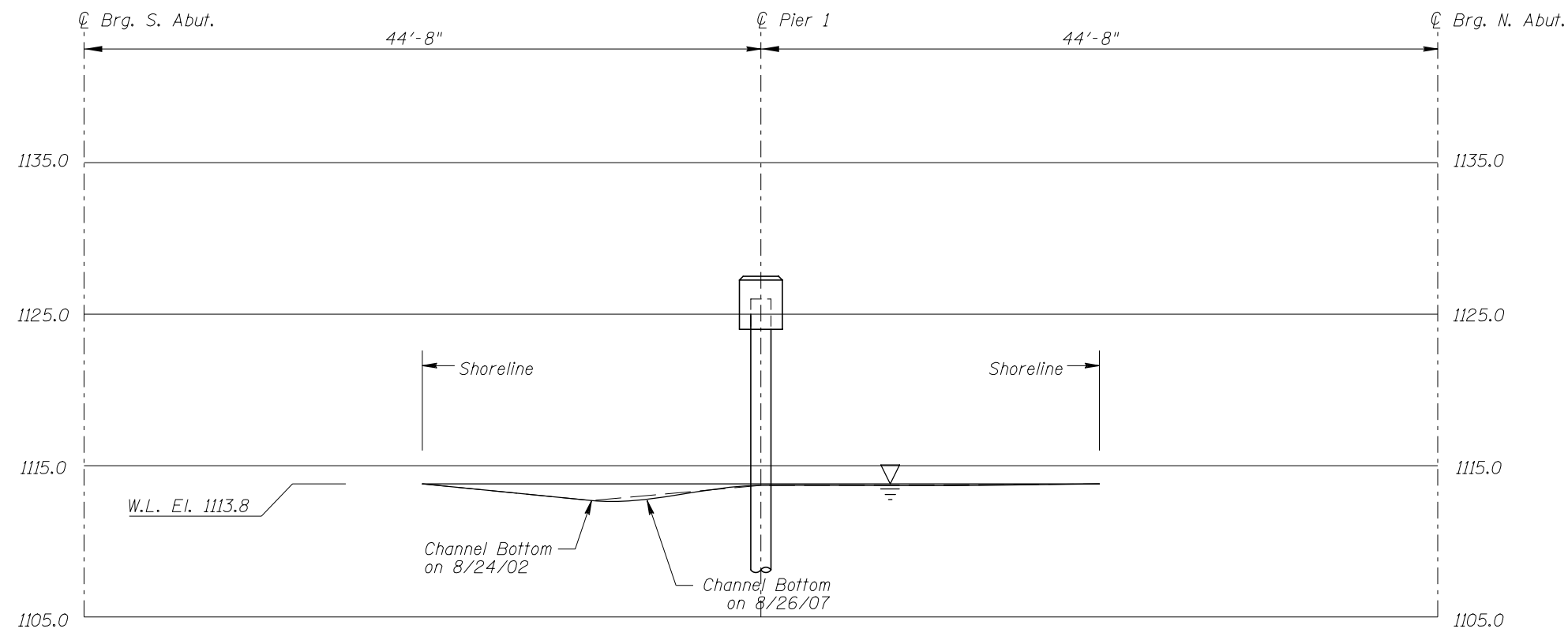


Photograph 2. View of Pier 1, Looking Northeast.





UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:
Refer to Figure 1 for General Notes.

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION			
STRUCTURE NO. 36516 OVER BEAVER BROOK DISTRICT 1, KOOCHICHING COUNTY UPSTREAM AND DOWNSTREAM FASCIA PROFILES			
Drawn By: PRH	COLLINS ENGINEERS	123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com	Date: AUG. 2007
Checked By: MDK			Scale: 1"=10'
Code: 5221005A			Figure No.: 2

INSPECTORS: Collins Engineers, Inc. DATE: August 26, 2007
ON-SITE TEAM LEADER: Daniel G. Stromberg, P.E.
BRIDGE NO: 36516 WEATHER: Sunny, 50° F
WATERWAY CROSSED: Beaver Brook
DIVING OPERATION: _____ SCUBA _____ SURFACE SUPPLIED AIR
 X OTHER Wading due to low water levels
PERSONNEL: John J. Loftus, Valerie Roustan
EQUIPMENT: U/W Light, Scraper, Lead Line, Sounding Pole, Probe Rod, Camera
TIME IN WATER: 11:20 A.M.
TIME OUT OF WATER: 11:40 A.M.
WATERWAY DATA: VELOCITY 0.5 fps
 VISIBILITY 1.0 feet
 DEPTH 1.3 feet maximum at Pier 1.
ELEMENTS INSPECTED: Pier 1
REMARKS: The steel shell piles were in good, sound condition, with 50% coating failure, and up to 25% nodular corrosion, with nodules ranging in size from 1/4 inch diameter to a maximum of 2 inch diameter. When removed, nodules revealed typical pitting with depths ranging from 1/32 inch penetration to 1/8 inch of penetration. Channel bottom appeared stable with no significant changes since the last inspection.

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 36516
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Daniel G. Stromberg, P.E. 21491
WATERWAY CROSSED Beaver Brook

INSPECTION DATE August 26, 2007
NOTE: USE ALL APPLICABLE CONDITION
DEFINITIONS AS DEFINED IN THE MINNESOTA
RECORDING AND CODING GUIDE INCLUDING
GENERAL, SUBSTRUCTURE, CHANNEL AND
PROTECTION, AND CULVERTS AND WALL
DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

UNIT REFERENCE NO.	UNIT DESCRIPTION	MAXIMUM DEPTH OF WATER	SUBSTRUCTURE						CHANNEL					GENERAL					
			PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER (BRACING)	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	1.3'	7	N	N	9	N	7	8	8	8	7	7	N	7	N	7	N	N

*UNDERWATER PORTION ONLY

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NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.